

### **REMARKS**

In the Office Action, the Examiner rejected claims 1-3, 6-16, 20-22, 24, 25, 27-36, 39-41, and 43-52. By this paper, Applicants amended claims 15, 25, 28, 36, and 46 and cancelled claims 49-51 to clarify features of the present techniques. Claims 1-3, 6-16, 20-22, 24, 25, 27-36, 39-41, and 43-46, and 52 remain pending in the present application and are believed to be in condition for allowance. Applicants respectfully request reconsideration and allowance of all pending claims.

### **Claim Objections**

In the Office Action, the Examiner objected to claims 28 and 51 due to informalities. Applicants have amended claim 28 as suggested by the Examiner, changing “potion” to “portion.” In addition, claim 51 has been cancelled, therefore the Examiner’s objection to this claim is moot. In view of these amendments, Applicants respectfully request the Examiner withdraw the objection to the claims.

### **Claim Rejections under 35 U.S.C. § 102(b)**

The Examiner rejected claims 46-48 under 35 U.S.C. § 102(b) as anticipated by Hottovy et al. (International Publication No. WO 00/53306). Anticipation under section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985).

By the present paper, Applicants have amended independent claim 46 to incorporate the subject matter of claims 49-51. Specifically, claim 46 now recites, *inter alia*:

purging the polymer solids with a purge gas to remove residual hydrocarbon entrained in the polymer solids to form a first stream comprising the purge gas and the residual hydrocarbon;  
separating purge gas from the first stream to form a second stream comprising separated purge gas and a third stream comprising primarily hydrocarbon; and  
transporting the third stream to the recycle tank or to the fractionation system, or a combination thereof.

In the Office Action, the Examiner stated that the Hottovy reference “is silent as to the process comprising the instantly claimed purging process.” Office Action, page 13. Accordingly, the cited reference does not disclose every element of claim 46, as amended. For at least these reasons, among others, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 102.

**Claim Rejections under 35 U.S.C. § 103(a)**

The Examiner rejected claims 1, 2, 6-14, 25, 27-36, 39-41, 43, and 49-52 under 35 U.S.C. § 103(a) as obvious over Hottovy in view of Sherk et al. (U.S. Patent No. 4,501,885). In addition, the Examiner rejected claims 3, 15, 16, 20-22, 24, 44, and 45 as obvious over Hottovy in view of Sherk and Saito et al. (U.S. Patent No. 4,365,057). Applicants respectfully traverse these rejections.

***Legal Precedent***

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). To establish a *prima facie* case, the Examiner must show that a combination of references includes *all* of the claimed elements, *and* also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *See Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). Moreover, the Supreme Court has stated that the obviousness analysis should be explicit. *See KSR Int'l Co. v. Teleflex, Inc.*, No. 04-1350, page 14 (U.S., decided April 30, 2007). “[R]ejections based on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *See id.* (quoting *In re Kahn*, 441 F.3d 977,988 (Fed. Cir. 2006)). Further, the Examiner cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

***The cited references, taken alone or in hypothetical combination, do not disclose returning recovered hydrocarbons to a fractionation zone and a recovery zone.***

Independent claim 1 recites, *inter alia*, “passing at least a first portion of the recovered hydrocarbon fluid stream from the recovery zone to a fractionation zone; [and] passing a second portion of the recovered hydrocarbon fluid stream from the recovery zone to a recycle zone.” (Emphasis added). The recited recovery zone is an area in

which “purge gas and hydrocarbon fluid are separated to form a recovered purge gas stream and a recovered hydrocarbon fluid stream.” Similarly, independent claim 25 recites, *inter alia*, “passing at least a portion of the recovered hydrocarbon fluid stream from the recovery zone to the recycle zone ... [and] passing a remainder of the recovered hydrocarbon fluid stream from the recovery zone to the fractionation zone.” (Emphasis added). Independent claim 36 recites, *inter alia*, “(f) a recycle tank adapted to receive hydrocarbon liquid from the condenser and to receive hydrocarbon fluid from the hydrocarbon/purge gas recovery unit ... and (h) a first fractionation column fluidically connected to a top portion of the recycle tank via a vapor delivery conduit, wherein the first fractionation column is adapted to receive hydrocarbon fluid from the hydrocarbon/purge gas recovery unit.” (Emphasis added).

As noted above, the Examiner rejected independent claims 1, 25, and 36 as obvious over Hottovy in view of Sherk. Specifically, the Examiner stated that Hottovy “suggests the provision of some form of polymer solids purging,” but “is silent as to the process comprising the instantly claimed purging process.” Office Action, page 5; *see also* pages 8 and 11. The Examiner then cited Sherk as teaching the recited purging process. The Sherk reference discloses a method for recovering diluent and inert gas from a polymerization process. *See* Sherk, Abstract. However, the cited references, taken alone or in hypothetical combination, do not suggest passing some of the recycled hydrocarbon stream to a fractionation zone and some to a recycle zone as recited in the

present claims 1 and 25, nor do they suggest a recycle tank and a fractionation column each adapted to receive portions of the recycled hydrocarbon stream.

Specifically, the Hottovy reference does not disclose a purge zone or a recovery zone, and therefore does not suggest what to do with purge gas or hydrocarbons recovered from a purge column. The Sherk reference discloses a recycling system for the inert purge gas used in a purge column, but does not suggest what to do with the recovered diluent beyond passing the diluent to a "purification zone." Sherk, col. 3, lines 2-5. No details are given about the "purification zone," and only one diluent stream is output from the separator described in Sherk. *See* Sherk, Fig. 1. Nothing in either cited reference suggests that a portion of the recovered diluent be sent to a fractionation zone and a portion be sent to a recycle zone as recited in the present claims. The Examiner, in combining these references, seems to have overlooked these elements of claims 1, 25, and 36. In view of these deficiencies, among others, the Examiner has not set forth a *prima facie* case of obviousness regarding independent claims 1, 25, and 36, and their dependent claims.

***The cited references, taken alone or in hypothetical combination, do not disclose passing polymer particles from an intermediate pressure zone to a purge column without passing through a low pressure zone.***

Amended independent claim 15 recites, *inter alia*, "a purge column fluidically connected to the polymer outlet of the intermediate pressure chamber, the purge column adapted to receive the solid polymer particles from the intermediate pressure chamber

without passing through a low pressure chamber.” (Emphasis added). Similarly, independent claim 36 recites, *inter alia*, “(d) a purge column fluidically connected to the polymer outlet of the intermediate pressure chamber and adapted to receive the solid polymer particles from the intermediate pressure chamber without passing through a low pressure chamber.” (Emphasis added). Independent claim 46 recites, *inter alia*, “separating a majority of the hydrocarbon liquid from the polymer solids in the effluent by flashing the majority of the hydrocarbon liquid in a single pressure zone to generate a hydrocarbon vapor.”

Again, the Examiner cited the Hottovy reference for disclosing the intermediate pressure chamber. However, the Hottovy reference discloses that polymer slurry is sent through two pressure zones, specifically a high pressure flash chamber 28 and a low pressure flash chamber 40. *See* Hottovy, page 5, lines 3-5 and 24-26. This second pressure chamber/zone is specifically disclaimed in claims 15, 36, and 46. Accordingly, the Examiner has not set forth a *prima facie* case of obviousness regarding independent claims 15, 36, and 46, and their dependent claims.

***The cited references, taken alone or in hypothetical combination, do not disclose introducing fresh purge gas to an extruder feed tank.***

Dependent claim 3 recites, *inter alia*, “feeding fresh purge gas to an extrusion feed zone and refraining from feeding fresh purge gas to the purge zone.” (Emphasis added). Similarly, dependent claim 16 recites, *inter alia*, “a fresh purge gas feed connected to the extruder feed tank.” (Emphasis added).

In the Office Action, the Examiner recognized that the Hottovy and Sherk references do not disclose feeding fresh purge gas to an extrusion feed zone. Office Action, pages 14-15; *see also* page 17. Accordingly, the Examiner cited the Saito reference as disclosing this element of claims 3 and 16. However, the Saito reference does not describe an extrusion feed zone/tank. Rather, the Saito reference describes a “silo type through-flow drying apparatus.” Saito, col. 2, lines 53-55. Accordingly, it would not be obvious from the combined teachings of Hottovy, Sherk, and Saito to feed fresh purge gas to an extrusion feeder as recited in the present claims. In view of these deficiencies, among others, the Examiner has not set forth a *prima facie* case of obviousness regarding independent claims 1, 25, and 36, and their dependent claims.

For at least the reasons set forth above, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103.

**Conclusion**

Applicants respectfully submit that all pending claims should be in condition for allowance. However, if the Examiner believes certain amendments are necessary to clarify the present claims or if the Examiner wishes to resolve any other issues by way of a telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

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